

Welcome to the

508 UNIVERSE



508 AWARENESS

IT'S THE LAW!	3
Section 1 Quiz	9
DISABILITIES AND ACCESSIBILITY	10
Section 2 Quiz	16
ROLES AND RESPONSIBILITIES	17
Section 3 Quiz	20
QUIZ ANSWERS	21
Section 1: It's the Law!	21
Section 2: Disabilities and Accessibility	21
Section 3: Roles and Responsibilities	21
REFERENCES	22

It's the Law!



In 1998, Congress amended the Rehabilitation Act of 1973 to reflect the focus on technology. This strengthened provisions to require that Federal agencies' electronic and information technology (E & IT) be accessible to persons with disabilities, including employees and members of the public. The law applies to all Federal agencies when they develop, procure, maintain, or use E & IT.

In plain English, section 508 aims to provide Federal employees with disabilities access to office systems and information

equal to their non-disabled colleagues. It also assures that people in the general public who have disabilities have equal access to government information.

Congress enacted the Rehabilitation Act in 1973 to provide people with disabilities opportunities to gain meaningful employment with the Federal government. The law defined the rights of people with disabilities to help them re-enter the workforce. The law:

- Defined a comprehensive set of services targeted to this population.
- Focused on non-discrimination on basis of handicap in programs or activities receiving Federal funds.

Section 508 was originally added to the Rehabilitation Act in 1986 but established non-binding requirements for technology accessibility. The law was amended in 1992 and again in 1998.

The Rehabilitation Act Amendments of 1998 significantly expanded and strengthened the requirements of section 508. As amended in 1998, the law directed the Access Board to create binding, enforceable standards that spell out what makes E & IT products accessible to persons with disabilities. Federal agencies must use these standards in all their E & IT acquisitions unless an exception applies. The consistent standards make it easier for agencies to meet their obligation to make technology systems accessible.

Since the legislation was incorporated into the updates to the Federal Acquisition Regulation (FAR) as published April 25, 2001, agencies' procurement of accessible technology is subject to the same stringent compliance and enforcement mechanisms as other parts of the FAR.

The scope of section 508 and the Access Board standards are limited to the Federal government and the US Post Office.



The 1998 amendments further strengthened the law by establishing a complaint procedure and reporting requirements for section 508. If a person with a disability discovers that a Federal agency has failed to comply with section 508, he or she can file an administrative complaint or a civil lawsuit. Complaints and lawsuits can only be filed against products that are procured.

The complaint process is the same as that used for section 504, under which a person with a disability can allege discrimination on the basis of disability in Federally conducted programs or activities. The administrative complaint process allows any individual with a disability to file a complaint alleging that a

Federal department or agency has not complied with the accessible technology standards in a procurement made after June 25, 2001.

Section 508 does not permit punitive damage awards. Those who prevail will win court orders demanding that agencies comply with section 508 and recovery of attorney's fees. Individuals may also file a civil action against an agency.

Under section 508, Federal agencies must ensure that E & IT is accessible to employees and members of the public with disabilities. E & IT includes information technology and equipment or interconnected system or subsystem of equipment that is used to create, convert, or duplicate data or information. E & IT also includes, but is not limited to:

- Telecommunications products (such as telephones).
- Information kiosks and transaction machines.
- World Wide Web sites.
- Multimedia (including videotapes).
- Office equipment (such as copiers and fax machines).
- Services.

Information technology refers specifically to equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. This is the same definition of IT as in the Clinger-Cohen Act.



Section 508 addresses accessibility for people who have:

- Visual disabilities.
- Hearing disabilities.
- Motor disabilities.

Agencies can apply an exception to section 508's requirement to procure accessible technology if such procurement would cause "an undue burden."

Undue burden is defined as a significant difficulty or expense. However, the definition is not precise and is open to interpretation. Undue burden is a legal issue. Your agency should not consider such an exception without consulting legal counsel.

To determine if the undue burden exception applies, an agency must consider and thoroughly document the difficulty and expense of compliance in relation to all agency resources available to the program or component for which the product is being acquired.

When an agency qualifies for an undue burden exception, section 508 still requires it to provide an alternative means for individuals with disabilities to access the information. This means that even if the product is not accessible, the information or data it provides must be available through an alternative means of access. For example, an agency might provide a text script for an audio program or a hard copy description of a program in Braille.

There are several other exceptions to section 508.

- National security systems (as defined in the Clinger-Cohen Act) used for military command, weaponry, intelligence, and cryptologic activities. The exemption does not apply to routine business and administrative systems used for other defense-related purposes or by defense agencies and personnel.

- Micro-purchases - one-time purchases of \$2,500 or less not made under an existing contract - made before January 1, 2003.
- Items acquired by a contractor incidental to a contract.
- Items located in spaces frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment.

In addition, agencies are not required to fundamentally alter their needs in order to comply with section 508. If no commercial items are available that meet each of the applicable Access Board standards in time to meet the delivery date, an agency may claim "commercial nonavailability" for those standards that can't be met.

The Access Board standards explain the detailed technical and functional performance criteria specific to various types of technologies, including:

- Software applications and operating systems.
- Web-based information or applications.
- Telecommunication products.
- Video and multimedia products.
- Self contained, closed products, such as information kiosks, calculators, and fax machines.
- Desktop and portable computers.



The accessible technology requirements of section 508 complement and support the accommodation process requirements of sections 501 and 504 of the Rehabilitation Act.

Section 501 prohibits discrimination by the Federal government in its own hiring practices and requires affirmative action in the hiring, placement, and advancement of people with disabilities.

It also requires that employers provide reasonable accommodations such as interpreters, assistive devices, or transportation, when needed.

Section 504 was the first Federal civil rights legislation designed to protect the rights of persons with disabilities. It was originally proposed as an amendment to the Civil Rights Act of 1964, but instead was included as an amendment to the Rehabilitation Act of 1973.

Section 504 prohibits discrimination against persons with disabilities in any Federally funded programs or activities. It requires that programs that receive Federal funds must be accessible to people with disabilities. Section 504 also prohibits disability-based job discrimination of any kind and requires that employers make reasonable accommodation for employees with disabilities.



There are other laws that also impact accessibility issues.

Telecommunications Act of 1996/Section 255 requires manufacturers of telecommunications equipment and software to ensure that equipment is accessible to persons with disabilities. If access is not readily achievable, then the equipment must be compatible with peripheral devices. Like section 508, the Access Board issued standards that set forth criteria for accessibility and compatibility.

Assistive Technology Act of 1998 recognized the existence of barriers and gaps in the current network of federal policy regarding assistive technology. The law supports States in their capacity to address the assistive technology needs of individuals with disabilities. It also supports loan programs for persons with disabilities to purchase assistive technology devices or services.

Section 508 requires that E & IT standards developed by the Access Board be incorporated into the FAR. This affects WHAT agencies acquire by defining the requirements development process, but does not change HOW they acquire it. The FAR implements the standards by:

- Including the definition of the term "electronic and information technology."
- Incorporating E & IT standards in acquisition planning, market research, and when describing agency needs.
- Adding a new Subpart 39.2 - Electronic and Information Technology.
- Establishing the temporary exception for micro-purchases.

The FAR treats indefinite deliverable, indefinite quantity (IDIQ) contracts differently. IDIQ contracts are allowed to contain products that are not compliant with section 508, but the orders that agencies send to vendors are subject to section 508 standards.



The FAR requires that purchasers of E & IT:

- Perform market research to determine the availability of compliant products and services.
 - Identify which standards, if any, would not apply in a procurement because of nonavailability or undue burden.
 - Document any nonavailability or undue burden exception.
-
- Develop technical specification minimum requirements based on market research results and agency needs.
 - Submit the information with a purchase request.

Accessible E & IT offers advantages that go beyond ensuring usability for persons with disabilities. Many technologies first designed to assist persons with disabilities were later adopted because of their value to everyone. Consider the advantage curb cuts provide. Although first created for people in wheelchairs, they make access for cyclists and parents with strollers easier. Making E & IT accessible can help ensure that everyone has access to the tools and information they need to learn and communicate.

Section 1 Quiz

1. The primary purpose of section 508 is to prohibit the use of electronic and information technology by Federal agencies because it is not always accessible to individuals with disabilities.

- True
- False

2. A person with a disability may file an administrative complaint or a civil lawsuit against a Federal agency if procurement for E & IT fails to comply with section 508.

- True
- False

3. Acquisitions of less than \$2,500 made as a "micro-purchase" prior to January 1, 2003 and not made under an existing contract are exempt from the 508 requirements.

- True
- False

Correct answers can be found on page 21 of this document.

Disabilities and Accessibility

Section 508 of the Rehabilitation Act was intended to remove barriers in electronic and information technology (E & IT) for all types of disabilities. Although section 508 does not define accessibility, it does provide a baseline for as high an inclusion of persons with disabilities as possible.

While most people think accessibility refers to accessing information on the Web, E & IT accessibility also includes a person's ability to use:

- Intranet.
- Computers.
- Telephones.
- Copiers.
- Printers.
- Fax machines.
- Kiosks.



Think about how you use technology every day. Would you be able to do your job if you were unable to use the computer, the telephone, the copier, the printer, or the fax machine? As a society, we have embraced technology. Most people can hardly conceive of life without it.

However, not everyone can reap its benefits. People with disabilities cannot participate fully because much of the technology is not designed for accessibility.

Inaccessible design creates a digital divide, which blocks some people from taking part in everyday activities and working in an e-environment.

Accessible design allows as many people as possible to use technology regardless of disability, age, or functional limitation.

There is growing awareness of the need for accessible design. In 2000, the World Health Organization estimated that there were 500 million persons with disabilities worldwide - nearly 10% of the world population.

In the US, 54 million people, 20% of the population, have a disability.



In addition, as people are living longer and the population ages, the number continues to grow. If you add persons with temporary disabilities due to accidents or illness, it's easy to understand why accessibility is an important issue.

E & IT is often evaluated for its usability and accessibility. Though the terms are often used interchangeably, there is a difference. Even if the technology is "accessible," there may still be serious usability problems that make it equally difficult for any person, disabled or non-disabled, to use it.

Usability focuses on how intuitive and easy it is for all people to use. Usable designs are consistent and simple to learn to use. Usability and accessibility often go hand-in-hand.

Accessibility is determined by how barrier free the technology is. Accessibility problems are those that make it more difficult for persons with disabilities to use an application or service than for a non-disabled person.

The key to accessibility is that it should be easy for everyone to use, including persons with disabilities.

Persons with disabilities may have difficulty perceiving or processing some types of information. Imagine trying to surf the Web with the monitor turned off, or with the mouse disconnected. For those who are blind or who have motor disabilities, these limitations are real. They may be unable to use common input devices, such as a keyboard or mouse, and often have to rely on special assistive technology (AT) devices.

Section 508 addresses accessibility issues for persons with these types of disabilities:

Visual - Visual disabilities are probably those most associated with access difficulties.

These include:

- Blindness or complete loss of sight.
- Legally blind, low or limited vision.
- Weak, dim, or tunnel vision.
- Extreme near- or far-sightedness.
- Color blindness.

Auditory - Hearing disability is best defined as a lack or reduction in the ability to hear clearly due to a problem somewhere in the hearing mechanism. Many people believe that persons with hearing disabilities are the least affected by E & IT accessibility. However, persons with hearing disabilities are limited to the amount of technology they can use. For example, many hearing-impaired individuals cannot listen to live voice mail or on-line audio chat because amplification cannot be made loud enough or because the sound is not clear to the listener.

Hearing disabilities include:

- Deaf or complete loss of hearing.
- Hard of hearing.
- High- and low-frequency loss.

Mobility - There is a broad range of mobility impairments, from minor conditions to profound disabilities, that restrict voluntary movement.

Mobility disabilities include:

- Repetitive stress injuries (RSI).
- Arthritis.
- Stroke.
- Amyotrophic Lateral Sclerosis (ALS).
- Spinal cord injuries.
- Loss of limbs or digits.
- Short-term disabilities, such as a broken arm.

To provide maximum accessibility to all users, the section 508 guidelines specify functional performance criteria that essentially define the “spirit” of the law. These criteria, listed in Subpart C of the Access Board standards, apply to all subcategories of the Technical Standards. They require all E & IT products and services to be fully operational without requiring users to have:

- Vision or visual acuity greater than 20/70.
- Hearing.
- Speech.
- Fine motor control or limited reach and strength.



Alternatively, the product or service may be designed to compatibly work with the assistive technology used by persons with disabilities.

Persons with disabilities commonly use assistive technology (AT) devices. AT enables a person with a disability to provide inputs and perceive outputs.

AT plays an important role in providing access. However, it is only part of the solution for accessibility. E & IT must be designed to

communicate with various types of AT devices. Accessibility problems occur if designers fail to do this when it is possible.

To access information, persons with visual disabilities may use:

Screen Readers - A screen reader is software that reads the text on a screen and outputs the information to a speech synthesizer or refreshable Braille display. With a screen reader, a user can navigate a screen and execute all commands using keyboard shortcuts. A screen reader reads the underlying code, not the surface text. If the code is not labeled well, it is read as a string of numbers, slashes, or random letters that can be unintelligible to the user. Have you ever tried to navigate the Web without a monitor or a mouse? That’s how the blind access the information on their computer. Try it for yourself. Select the link in the References section on the last page of this document to see what it’s like for a blind person to use a screen reader to navigate a website.

Refreshable Braille - A refreshable Braille display works with a screen reader to interpret the text on a screen into Braille characters. The Braille device sits in front of a keyboard and has a series of small pins that raise and lower to form the characters. The user refreshes the display as necessary.



Voice Recognition - Voice recognition software enables users to dictate text into a computer. The user programs the software with his or her voice, then talks into the computer to complete any actions that can be done using the keyboard.

Screen Magnification - Users with low acuity vision may use a screen magnifier program. The screen magnifier enlarges a selected portion of the screen. These programs often include screen reader capabilities. While this software improves the readability of small text, it limits the visible area of the document and often requires a great deal of side-to-side scrolling as well as the normal top-to-bottom

scrolling. Enlarged graphics also become very pixilated and, if they contain text, can be difficult to read.

High-Contrast Color - High-contrast color schemes can make the screen easier to view for some users by heightening screen contrast with alternative color combinations and font sizes.

Although much of the Internet is text or graphics, persons with hearing disabilities still have accessibility issues. Increased use of streaming audio and video means that a person with a hearing disability may not be able to access information. Captioning for all audio content increases accessibility.

Persons with hearing disabilities use AT that includes:

Amplification - Persons with hearing impairments often have difficulty understanding what a speaker is saying even while face-to-face. This difficulty extends to telephones and other E & IT as well. Amplification devices make the incoming voice louder. They also often reduce background noise, making the voice clearer and easier to understand. Wonder what speech or music sounds like to a person with a hearing loss? To give you an idea, think about what your car radio sounds like when it's not tuned to a station. No matter how much you turn up the volume, the sound is still unintelligible. See for yourself. Select the link in the References section on the last page of this document to access a demonstration of a moderate or severe hearing loss.

TTY/TDD - TTY/TDD lets a person who is deaf communicate with another person by reading a typed text message. TTY has a basic keyboard that connects to the telephone and translates audio signals into text. The user types a message on the keyboard and the message is then transmitted in a text format to the receiver's TTY display. If the person receiving the TTY transmission does not have TTY, then a telephone relay operator functions as a "middleman," relaying the typed text message verbally. To respond, the receiver speaks to the relay operator who in turn types the message via TTY back to the caller.



Mobility disabilities, whether permanent or short-term, limit a person's ability to use a mouse. Since manipulating a mouse cursor can be laborious, persons with mobility impairments need features that provide keyboard access. They also need to be able to skip repetitive navigation links and access content more directly.

Persons with mobility disabilities typically use AT that includes:

- Keyboard access.
- Breathe control devices.
- Retinal scanning devices.
- Voice input/recognition.

Accessible design benefits more than just persons with disabilities. Have you ever taken advantage of a curb cut while riding a bike or pushing a baby carriage? Although curb cuts and building ramps were installed to provide access for people in wheelchairs, those with difficulty navigating steps also take advantage.

The key to accessible design is that it should be easy for everyone to use, including a person with a disability. Design that is more accessible:

- Creates new opportunities for persons with disabilities.
- Creates a less hostile work environment for persons with disabilities.
- Often reduces fatigue and increases speed for all users.
- Broadens the audience you can reach.

Section 2 Quiz

1. Through assistive technology, persons with disabilities can gain access to information.

- True
- False

2. Screen readers, TTY/TDD, and refreshable Braille are just some assistive technology devices available to persons with visual disabilities.

- True
- False

Correct answers can be found on page 21 of this document.

Roles and Responsibilities



Successful implementation of section 508 hinges on the coordination of many groups throughout the government and within each agency.

You must work as partners to achieve section 508 compliance. Each team member must have a clear idea of what is expected of him/her and for what he/she will be accountable.

Individuals must also know what is expected of others. This overall knowledge of roles and responsibilities will help you identify valuable resources and build strength and mutual support for achieving a common goal.

There are two different types of roles and responsibilities, implementation overseers and frontline representatives.

Both implementation overseers and frontline representatives have a stake in ensuring section 508 compliance and electronic and information technology (E & IT) accessibility in government agencies.

Each of the implementation overseers has a distinct role in ensuring the success of section 508.

- Department of Justice (DOJ) coordinates agency responsibilities under section 508.
- The Access Board develops and promotes standards.
- Federal Acquisition Regulation Council (FARC) revised the FAR to incorporate the E & IT standards developed by the Access Board.
- General Services Administration (GSA) provides technical assistance.
- Chief Information Officer Council (CIOG) assists in the compliance of section 508 policy and procedures.
- Office of the Chief Financial Officer (OCFO) promotes financial leadership, policy, and oversight.
- Office of Management and Budget (OMB) organizes the Federal 508 Steering Committee.

Frontline representatives are key to the successful implementation of section 508. This group is responsible for the daily implementation of section 508 standards. They include:

- Chief Information Officer (CIO).
- Chief Financial Officer (CFO).
- Section 508 Coordinator.
- Requiring Officials and Contracting Officers.
- Human Resources representatives.
- IT Managers.



Section 508 requires the head of a Federal agency to provide information to the Attorney General regarding compliance. In most agencies, this responsibility falls to the Chief Information Officer (CIO). The CIO is responsible for:

- Managing an agency's E & IT resources.
- Applying section 508 within an agency.
- Preparing section 508 status reports for the DOJ.

The CIO may also designate a 508 Coordinator and establish an Accessibility Team to facilitate agency efforts.

The Chief Financial Officer (CFO) is responsible for:

- Promoting sound financial management through leadership, policy, and oversight.
- Creating an infrastructure to carry out financial management policies.
- Operating a financial center that produces timely and reliable information.



Requiring Officials and Contracting Officers are personnel who request E & IT. In accordance with the FAR, requestors of E & IT must research standards that apply to procurement and perform market research to determine availability of compliant products. They must provide section 508 compliance documentation along with their purchase request.

Contracting Officers must pursue effective acquisition strategies for acquiring E & IT that meets applicable standards. The Buying Accessible E & IT course in the 508 Universe details this information.

Human Resources (HR) personnel must be aware of section 508 standards to develop and plan for continued accessibility. HR must apply section 508 to their processes and procedures for:

- Recruitment.
- Hiring.
- Benefits.
- Retention and career development.
- Confidentiality of personal information.

IT Managers are responsible for:

- Evaluating E & IT procurement issues to create accessibility testing procedures.
- Accessing the agency website to determine if it meets 508 compliance and provide solutions for non-compliance.
- Coordinating with software and hardware developers to support validation of E & IT against 508 standards.
- Making resources available, such as information and tools, to employees via the agency's intranet.
- Determining E & IT needs and incorporating accessibility provisions into software development lifecycles.
- Testing E & IT against E & IT standards.

Section 3 Quiz

1. The 508 Coordinator leads the agency's efforts to implement section 508.
 - True
 - False

2. The Department of Justice acts as a technical assistance resource for information regarding accessible E & IT products and accessible training resources.
 - True
 - False

Correct answers can be found on page 21 of this document.

Quiz Answers

Section 1: It's the Law!

1. The correct answer is **False**. The primary purpose of section 508 is to provide persons with disabilities comparable access to and use of Federal agencies' electronic and information technology.
2. The correct answer is **True**. If a person with a disability discovers that a Federal agency procurement for E & IT has failed to comply with section 508, he or she can file an administrative complaint or a civil lawsuit. However, complaints and lawsuits can only be filed against products that are procured.
3. The correct answer is **True**. Acquisitions are also exempt if they are for a national security system, located in spaces frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment, or would impose an undue burden on the agency.

Section 2: Disabilities and Accessibility

1. The correct answer is **True**. Assistive technology plays an important role in providing access. However, if E & IT isn't designed to communicate with these assistive technology devices, it still won't be accessible.
2. The correct answer is **False**. While screen readers and refreshable Braille are available to persons with visual disabilities, TTY/TDD is used by persons with hearing disabilities.

Section 3: Roles and Responsibilities

1. The correct answer is **True**. Although the specific roles and responsibilities of the 508 Coordinator may vary by agency, his/her overall responsibility is to lead the agency's efforts to implement section 508.
2. The correct answer is **False**. GSA acts as a technical assistance resource for information regarding accessible E & IT products and accessible training resources.

References

Access Board

<http://www.access-board.gov/indexes/accessindex.htm>

Telecommunications Act of 1996

<http://www.fcc.gov/telecom.html>

Animations of Processes within the Ear

<http://www.neurophys.wisc.edu/animations/>

Screen Reader Simulation

<http://www.webaim.org/simulations/screenreader>

Section 508 Universe

<http://section508.gov/508/>